Indiana Crop & Weather Report

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CROP REPORT FOR WEEK ENDING JULY 11

Soil conditions became progressively drier during the week especially in the central and northern areas of the state. Pastures have also deteriorated from lack of precipitation according to the Indiana Agricultural Statistics Service. Major activities during the week included harvesting wheat, baling hay and straw, post-emergence spraying, monitoring fields for insects, mowing pastures, care of livestock and preparing for county fairs.

CORN AND SOYBEANS

Corn condition declined from last week with 78 percent of the crop rated good to excellent compared with 58 percent at this time last year. Thirty percent of the corn crop has **silked** compared with 16 percent last year and 9 percent for the 5-year average. **Planting** of double crop soybeans is virtually complete. Fifty-three percent of the soybean acreage is **blooming** , far ahead of the 25 percent last year and the average of 18 percent. Soybean **condition** declined from last week and is rated 76 percent good to excellent compared with 57 percent last year. Six percent of the soybean acreage is setting pods.

WINTER WHEAT

Winter wheat harvest advanced rapidly during the week, aided by favorable weather conditions. Harvest advanced to 94 percent complete, only 1 day behind the record pace of 95 percent established in 1988. Last year 89 percent of the wheat was harvested and the 5-year average is 61 percent. By area, wheat harvest is 87 percent complete in the north, 95 percent complete in the central regions and 98 percent complete in the south.

OTHER CROPS

Pasture condition declined from last week and was rated 5 percent excellent, 51 percent good, 34 percent fair, 8 percent poor and 2 percent very poor. Second cutting of **alfalfa** hay is 70 percent complete, compared with 53 percent last year and 36 percent for average.

DAYS SUITABLE and SOIL MOISTURE

For the week ending Friday, 6.2 days were rated **suitable for fieldwork** . **Topsoil moisture** was rated 6 percent very short, 33 percent short, 55 percent adequate and 6 percent surplus. **Subsoil moisture** was rated 6 percent very short, 29 percent short, 60 percent adequate and 5 percent surplus.

CROP PROGRESS

Crop	This Week	Last Week	Last Year	5-Year Avg
	Percent			
Corn Silking	30	5	16	9
Soybeans Blooming	53	24	25	18
Wheat Harvested	94	51	89	61
Alfalfa, Second Cutting	70	44	53	36

CROP CONDITION

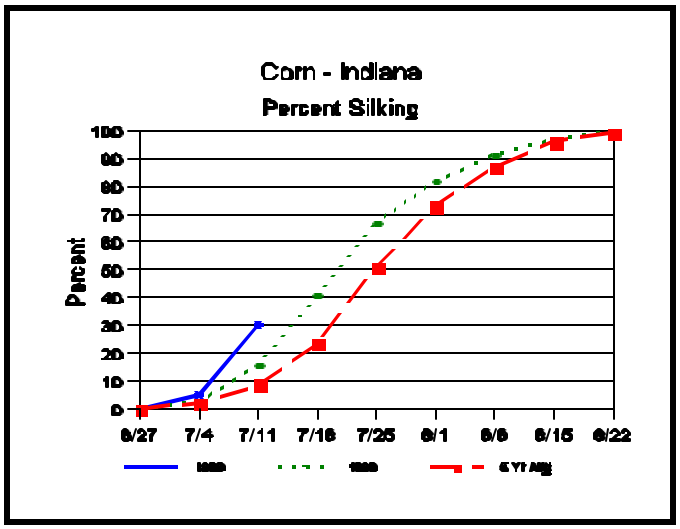
Crop	Very Poor	Poor	Fair	Good	Excel-lent
			Percent		
Corn	1	3	18	53	25
Soybeans	1	3	20	55	21
Pasture	2	8	34	51	5

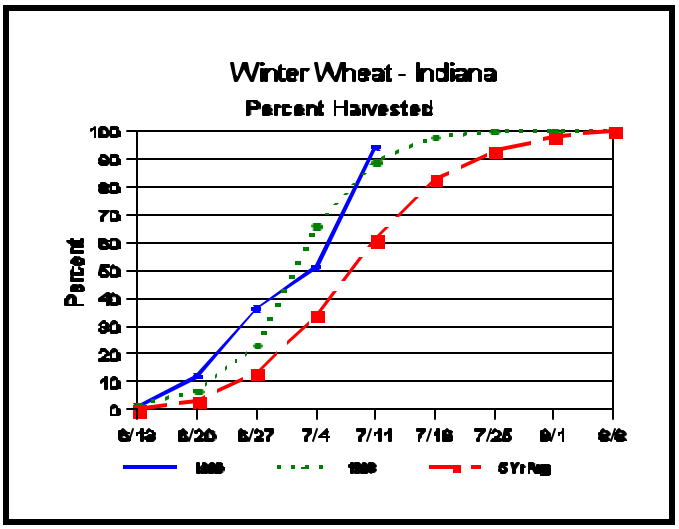
SOIL MOISTURE

	This Week	Last Week	Last Year
		Percent	
Topsoil			
Very Short	6	2	1
Short	33	11	4
Adequate	55	65	61
Surplus	6	22	34
Subsoil			
Very Short	6	3	0
Short	29	14	4
Adequate	60	70	66
Surplus	5	13	30

--Ralph W. Gann, State Statistician
--Bud Bever, Agricultural Statistician
E-Mail Address: nass-in@nass.usda.gov
http://info.aes.purdue.edu/agstat/nass.html

Crop Progress





Suggestive Behavior in the Corn Field

Quite a bit of the April-planted corn in Indiana is now entering or is fully into the critical pollination period. The remainder of Indiana's corn crop will pollinate sometime during the next two to three weeks. Success or failure during this period of the corn plant's life will greatly determine the yield potential at harvest time. As important as this process is to determination of grain yield, it is surprising how little some folks know about the whole thing. Rather than leaving you to learn about such things "in the streets", here are the fundamentals about sex in the corn field.

Remember that corn has both male flowers and female flowers on the same plant (a flowering habit called monoecious for you trivia fans.) Interestingly, both flowers are initially bisexual (aka 'perfect'), but during the course of development the female components (gynoecia) of the male flowers and the male components (stamens) of the female flowers abort.

Tassels & Pollen

More trivia: From 500 to 1000 spikelets form on each tassel. Each spikelet contains two florets. Each floret contains three anthers. As these florets mature, anthers emerge and pollen is dispersed through pores that open at the tips of the anthers.

The anthers are those gizmos that hang from the tassel during pollination. Under a magnifying lens, anthers look somewhat like the double-barrel of a shotgun. Don't mistake anthers for the pollen itself. Pollen is contained inside the anthers.

The yellow 'dust-like' pollen that falls from the anthers of the tassel actually represent two to five million individual, nearly microscopic, spherical, yellowish-translucent pollen grains. Each pollen grain contains the male genetic material necessary for fertilizing the ovary of one potential kernel.

All of the pollen from a single anther may be released in as little as three minutes. An individual tassel may take as long as seven days to finish shedding its pollen, although the greatest volume of pollen may be shed during the second and third day of anther emergence. Because of natural field variability in plant development, a whole field may take as long as 14 days to complete pollen shed.

If the anthers are wet, the pores will not open and pollen will not be released. Thus, on an average Indiana summer morning following a heavy evening dew, pollen shed will not begin until the dew dries and the anther pores open. Cool, cloudy, humid conditions also delay the onset of pollen shed. Similarly, pollen is not shed during rainy conditions. So, growers need not worry about pollen being washed off the tassel during heavy rainfall.

Extreme heat stress (100 F or greater) can kill corn pollen, but fortunately the plant avoids significant pollen loss by virtue of two developmental characteristics. First of all, corn pollen does not mature or shed all at once. Pollen maturity and shed occur over several days and up to two weeks. Therefore, a day or two of extreme heat usually does not affect the entire pollen supply. More importantly, the majority of daily pollen shed occurs in the morning hours when air temperature is much more moderate.

(Continued on Page 4.)

Weather Data

Week ending Sunday July 11, 1999

Station	Past Week Weather Summary Data							Accumulation April 1, 1999 thru July 11, 1999				
	Air Temperature				Precip.		Avg 4 in Soil	Precipitation		GDD Base 50°F		
	Hi	Lo	Avg	DFN	Total	Days	Temp	Total	DFN	Days	Total	DFN
Northwest(1)												
Valparaiso_Ag	90	52	75	+3	0.00	0		13.62	+0.09	38	1442	+209
Wanatah	91	43	71	-1	0.00	0	82	14.37	+1.43	41	1237	+65
Wheatfield	92	50	75	+3	0.00	0		17.59	+4.82	36	1460	+252
Winamac	92	52	75	+3	0.00	0		13.20	+0.37	33	1464	+195
North Central(2)												
Logansport	92	53	75	+3	0.15	2		13.56	+1.26	43	1484	+195
Plymouth	92	52	74	+1	0.08	1		16.16	+2.76	42	1444	+121
South_Bend	92	50	75	+3	0.00	0		13.51	+0.94	39	1494	+278
Young_America	92	54	76	+3	0.36	3		10.59	-1.71	40	1392	+103
Northeast(3)												
Bluffton	95	55	75	+2	1.16	3	79	10.10	-2.79	36	1493	+170
Fort_Wayne	95	54	76	+3	0.23	1		11.86	+0.20	41	1465	+186
West Central(4)												
Crawfordsville	92	48	74	+0	0.12	1	77	11.08	-2.59	43	1385	-32
Perrysville	90	50	74	-1	0.00	0	84	11.06	-2.68	40	1545	+165
Terre_Haute_Ag	92	56	76	+1	0.64	2		14.23	+0.60	44	1727	+249
W_Lafayette_6NW	93	50	77	+4	0.13	1	85	13.70	+1.04	41	1531	+238
Central(5)												
Castleton	91	59	77	+2	0.13	2		12.82	-0.22	48	1577	+139
Greenfield	93	54	76	+2	0.42	1		10.44	-3.21	46	1561	+174
Indianapolis_AP	94	58	77	+2	0.87	1		11.92	-0.80	43	1688	+225
Indianapolis_SE	92	56	76	+1	0.32	2		11.65	-1.39	48	1516	+78
Tipton_Ag	91	53	74	+0	0.06	1	76	11.07	-1.57	37	1377	+129
East Central(6)												
Farmland	93	50	74	+2	2.07	2	75	11.52	-1.34	44	1469	+262
New_Castle	89	52	73	-1	0.41	2		11.88	-2.09	44	1339	+102
Southwest(7)												
Dubois_Ag	92	56	77	+2	0.20	1	84	16.57	+1.65	42	1674	+183
Evansville	92	60	78	+0	0.82	3		17.11	+3.44	43	1846	+99
Freelandville	92	58	78	+3	1.50	2		19.40	+5.29	42	1658	+120
Shoals	92	56	76	+2	0.68	1		16.10	+0.98	36	1582	+110
Vincennes_5NE	96	58	78	+3	0.59	2	85	17.71	+3.60	53	1726	+188
South Central(8)												
Bloomington	94	55	77	+3	0.85	1		14.27	+0.44	39	1674	+178
Tell_City	92	62	79	+3	0.33	3		14.87	-0.48	36	1858	+215
Southeast(9)												
Butlerville	92	53	77	+2	0.90	2	82	14.09	+0.48	49	1624	+85
Scottsburg	95	54	78	+3	0.24	1		12.59	-1.45	35	1736	+210

DFN = Departure From Normal (Using 1961-90 Normals Period).
GDD = Growing Degree Days.
Precipitation (rain or melted snow/ice) in inches.
Precipitation Days = Days with precipitation of 0.01 inch or more.
Air Temperatures in Degrees Fahrenheit.

The above weather information is provided by AWIS, Inc.
For detailed ag weather forecasts and data visit the AWIS home page at
www.awis.com or call toll free at 1-888-798-9955.

Ears & Silks

The silks that emerge from the ear shoot are the functional stigmas of the female flowers. Every potential kernel (ovule) on an ear develops its own silk that must be pollinated in order for the ovary to be fertilized and develop into a kernel. Typically, up to 1000 ovules form per ear, even though we typically harvest only 400 to 600 actual kernels per ear.

Silk elongation begins 7 to 10 days prior to silk emergence from the husk. Complete silk emergence from an ear generally occurs within two to seven days. Silks from the basal portion of the ear typically emerge first, while the tip silks generally emerge last.

Pollination & Fertilization

For those of you serious about semantics, let's review two definitions relevant to sex in the corn field. Pollination is the act of transferring the pollen grains to the silks by wind or insects. Fertilization is the union of the male gametes from the pollen with the female gametes from the ovary. Technically, pollination usually occurs successfully (i.e., the pollen reaches the silks), but unsuccessful fertilization results in poor kernel set on the ears.

Pollen grain germination occurs within minutes after a pollen grain lands on a receptive (moist) silk. A pollen tube, containing the male genetic material, develops and grows inside the silk, and fertilizes the ovary within 24 hours. Pollen grains can land and germinate anywhere along the length of an exposed silk. Many pollen grains can germinate on a receptive silk, but typically only one will successfully fertilize the ovary.

Silk clipping by certain insects like the corn rootworm beetle not only removes viable silk tissue, but also injures a certain length of the remaining silk. Generally, silk length on these injured ear shoots must be at least half an inch to ensure that a sufficient length of uninjured silk tissue is exposed for pollen germination to occur.

Silk receptivity to pollen grain germination exists up to 10 days after silk emergence. After 10 days, silk receptivity decreases rapidly. Silk elongation continues until pollination is successful, although elongation eventually ceases as unfertilized silks senesce.

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